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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/737,138

12/16/2003

Harry E. Eaton

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EXAMINER

BLACKWELL, GWENDOLYN ANNETTE

ART UNIT

PAPER NUMBER

1775

MAIL DATE

DELIVERY MODE

08/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/737,138	Applicant(s) EATON ET AL.	
	Examiner Gwendolyn Blackwell	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4, 8, 9, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4, 8, 9, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 2-4, 8-9, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent no. 6,645,649, Tanaka et al in view of Applicant's admission.

Regarding claims 19 and 4

Tanaka et al disclose a surface coated sintered body of silicon nitride (substrate) with a coating layer (environmental barrier) formed thereon with a protection layer (velocity barrier) layer formed on the coating layer. The protection layer has a porosity of 5-30%. The coating layer comprises a rare earth silicate and the protection layer also comprises a rare earth silicate, (columns 17-19, claims 1 and 8). Yttrium is one of the preferred rare earth elements, (column 5, lines 7-17). The rare earth silicate of the protection layer can have the same molar ratio as the

Art Unit: 1775

coating layer (column 5, lines 25-37), wherein the molar ratio of silica/rare earth is from 0.9-1.02 for monosilicate and 0.9-2.3 for a mixed monosilicate/disilicate layer, (column 4, lines 52-64). Tanaka et al do not disclose the use of a bond coat as part of the EBC coating.

Applicant admits that it is known in the art to use a bond coat as part of the EBC coating, wherein the bond coat is comprised of silicon, (specification, page 1, section 0002). *MPEP* 2129.

Tanaka et al and Applicant disclose analogous inventions related to coated silicon based substrates that are used in high temperature environments such as turbine components. It would have been obvious to one skilled in the art at the time of invention to modify the coating of Tanaka et al with the bond coat as disclosed by Applicant in order to further strengthen the adhesive bond between the EBC and velocity barrier layers to the substrate.

Regarding claims 2-3, 8-9, and 18

As the layer structure meets the claimed limitations, the claimed physical properties are presumed present in the prior art, claims 2-3 and 8-9.

The coating layer and the protection layer are can be used on turbine parts, (column 1, lines 5-16), claim 18.

Response to Arguments

4. Applicant's arguments filed May 21, 2207 have been fully considered but they are not persuasive. In light of Applicant's claim amendment, the rejection has been changed from an anticipation rejection under 35 USC 102 to an obviousness rejection under 35 USC 103.

Art Unit: 1775

5. Applicant contends that Tanaka et al ('649 patent) does not teach an additional bond coat, but actually teaches away from the use of silicon bond coats.

This is not persuasive as Tanaka et al discusses excess silica being present in the layer, not excess silicon. In order to control the amount of excess silica, Tanaka et al have disclosed methods to achieve that goal, (columns 2-9, lines 9-55). As Tanaka et al teaches ways to ensure that excess silica is not present, to decrease the adhesion of the layers to the substrate, it would have been obvious to one skilled in the art at the time of invention to modify the additional bond coat through routine experimentation using the protocol set forth by Tanaka et al in order to insure that excess silica is not present in the layer structure.

For the reasons set forth above, the prior art is maintained.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

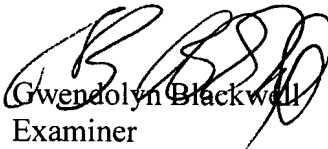
Art Unit: 1775

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Gwendolyn Blackwell
Examiner
Art Unit 1775